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EXAMINER

SINGH, DALZID E

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/839,023

Applicant(s)

RAJ ET AL.

Examiner

Dalzid Singh

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "multiprocessor device" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1, 11 and 21, recites "multiprocessor device". It appears that such limitation implies a device comprising of multiprocessors or a device comprising plurality of processors. The specification, as originally filled, does not disclose such limitation. Therefore, the limitation "device" is considered as new matter.

On pages 3-4 of the specification, as originally filled, applicant disclosed a system comprising plurality of processors or multiprocessor system. Fig. 1 of applicant's drawings shows a system (10) comprising plurality of interconnected processors (P1-P4). For example, as shown in Fig. 1, each node (13a, 13b, 13c or 13d) comprises of one processor (12a, 12b, 12c or 12d) respectively, therefore, the system (10) comprises plurality of processors. There is no structure or circuit diagram provided to teach a person of ordinary skill of multiprocessor device or a device comprising of plurality of processors. Therefore, based on this, claims 1, 11 and 21 contain subject matter which was not described in the specification in such a way as to reasonably

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convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

4. Claims 1-30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claims 1, 11 and 21, recites "multiprocessor device". It appears that such limitation implies a device comprising of multiprocessors or a device comprising plurality of processors. However, disclosed on pages 3-4 of the specification as originally filled, applicant disclosed a system comprising plurality of processors or multiprocessor system. Fig. 1 of applicant's drawings shows a system (10) comprising plurality of interconnected processors (P1-P4). For example, as shown in Fig. 1, each node (13a, 13b, 13c or 13d) comprises of one processor (12a, 12b, 12c or 12d) respectively, therefore, the system (10) comprises plurality of processors. There is no structure or circuit diagram provided to teach a person of ordinary skill of multiprocessor device or a device comprising of plurality of processors. Therefore, based on this, the specification fails to provide enabling disclosure for claims 1, 11 and 21.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 and 9-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata (US Patent No. 5,500,857).

Regarding claims 1 and 11 (as far as understood), Nakata discloses optical communication system, as shown in Fig. 7, comprising:

an optical transceiver including a wavelength division multiplexer to enable optical communication with the other two transceivers (as shown in Fig. 7, Nakata shows multiple nodes (21-26), wherein each node comprises of optical transceiver, see col. 5, lines 32-35).

Nakata differs from these claims in that Nakata does not specifically disclose a processor coupled to each optical transceiver. However, it is extremely well known that optical transceiver comprises processor to process the signal. Therefore, if it is not inherent, it would have been obvious to couple processor to the optical transceiver of Nakata. One of ordinary skill would have been motivated to do such in order to efficiently control operation of the optical transceiver in transmitting and receiving of information signal.

Furthermore, since the optical transceiver within a node is connected to other optical transceiver at other nodes (for example, in Fig. 7, Nakata shows that the nodes

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are interconnected in a ring configuration), therefore processor of optical transceiver at one node location is coupled to other processor of optical transceiver located at other node locations.

Regarding claim 2, in col. 5, lines 30-32, Nakata teaches the that the optical transmitter includes a laser.

Regarding claim 3, in col. 5, lines 22-25, Nakata teaches the use of wavelength filter tunable to a particular input wavelength, which is located at the node.

Regarding claims 4 and 12, in col. 5, lines 42-45, Nakata teaches that each processor (processor within the node, see claim 1) is assigned a wavelength (for example, λ_1) for communicating with the other processors located at other node.

Regarding claim 5, in Fig. 7, Nakata shows coupler (8 or 9) to couple the optical signal which reflect the optical signal to and from node 25.

Regarding claim 9, in col. 5, lines 55-60, Nakata teaches that each optical transceiver within a node transmits a light beam together with a code identifying a sending and a receiving processor (the code is in a form of an address within the packet of the signal to indicate self address and destination address).

Regarding claim 10, in col. 17, lines 27-52, Nakata teaches that when one processor is receiving a wavelength division multiplexed signal from another processor, the one processor broadcasts to all other processors that the one processor is busy (since a busy signal is indicated by inserting a 1 into a frame pulse, which is transmitted and circulated around the transmission line, therefore busy signal is being

broadcast from one optical transceiver containing processor to other optical transceiver containing processor).

Regarding claims 13 and 22, in col. 5, lines 51-67 to col. 6, lines 1-12, Nakata teaches step including scanning for the wavelengths of any of said other processors (the optical frame pulse is received detect or scan for available wavelength).

Regarding claims 14 and 23, in col. 5, lines 51-67, Nakata teaches that the node transmitting a light beam having a predetermined wavelength, and transmitting a code that identifies the transmitting processor and the intended receiving processor (the code is the packet signal including the self and destination address which is converted to a particular wavelength, for example λ_a , and transmitted on the transmission line).

Regarding claims 15 and 24, in col. 6, lines 5-12, Nakata teaches that the receiving processor identifies the wavelength of the incoming beam and the code accompanying said beam, and locks to the wavelength of the transmitting processor (the node checks for available wavelength by identifying the wavelength of the incoming beam, which is included in the management table, if there is an available wavelength, then select or lock that wavelength for communication).

Regarding claims 16, 17, 25 and 27, in col. 17, lines 27-52, Nakata teaches notifying a first processor (node) when a second processor (node) is receiving a beam from a third processor (a busy signal inserted into a frame pulse is transmitted as a token to go around the transmission line; since the frame pulse goes around the transmission lines, therefore other nodes or processor is notified through the management table that a particular wavelength is being used).

Regarding claims 18 and 26, in col. 18, lines 33-38, Nakata teaches indicating when said second processor is no longer communicating with said third processor (processor within the nodes informs other nodes when communication is finished or completed).

Regarding claim 19 (as far as understood), in col. 5, lines 53-67, Nakata teaches using a code (for example, packet containing self and destination address) transmitted by the third processor (node) to determine if a given processor (node) is the intended recipient of a beam transmitted from the third processor (the recipient processor receive the address and determine whether the transmitted signal is intended for it).

Regarding claim 20, as discussed above, since the communication signal is transmitted in optical form (for example, wavelengths are transmitted from one node to the other nodes), therefore the processors (node) are optically interconnected.

Regarding claim 21 (as far as understood), Nakata discloses optical communication system, as shown in Fig. 7, comprising:

identify a light communication from a node intended for said first node (in col. 5, lines 51-67 to col. 6, lines 1-28, Nakata teaches that wavelength between the nodes are assigned to be different wavelengths);

tune to said wavelength (each of the nodes are tuned to the assigned wavelength, see col. 5, lines 43-50); and

notify a third node that the first node is tuned to said wavelength (in col. 6, lines 1-28, Nakata teaches transmission of line management table to indicate wavelength being used or assigned to a particular node; the line management table is transmitted

as a token around the transmission line to be accessible to all the nodes in the network, therefore other nodes is notified that a particular wavelength is being used).

Nakata differs from this claim in that Nakata does not specifically disclose a processor coupled to each optical transceiver. However, it is extremely well known that optical transceiver comprises processor to process the signal. Therefore, if it is not inherent, it would have been obvious to couple processor to the optical transceiver of Nakata. One of ordinary skill would have been motivated to do such in order to efficiently control operation of the optical transceiver in transmitting and receiving of information signal.

Furthermore, since the optical transceiver within a node is connected to other optical transceiver at other nodes (for example, in Fig. 7, Nakata shows that the nodes are interconnected in a ring configuration), therefore processor of optical transceiver at one node location is coupled to other processor of optical transceiver located at other node locations.

Regarding claim 28, in col. 5, lines 4-21 and 40-42, Nakata teaches the use optical communications and wavelength division multiplexing.

Regarding claim 29, in col. 5, lines 43-50, Nakata teaches that the first processor-based system (node) to communicate with other processor-based systems (node) using an assigned wavelength (for example, λ_1 is used for communication between node 22 to node 25).

Regarding claim 30, in col. 5, lines 51-57, Nakata teaches that the first processor-based system (node) to transmit a code (a code or packet containing self

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and destination address) that identifies said first processor-based system (node) and an intended receiving processor-based system (node).

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakata (US Patent No. 5,500,857) in view of Huber et al (US Patent No. 6,687,428).

Regarding claim 6, Nakata disclose optical communication system comprising of coupler as discussed above and differ from this claim in that Nakata does not specifically disclose that the coupler is elliptical coupler. However, it is well known that there are various designs of optical coupler. Huber et al is cited to show the well known concept of using elliptical coupler. Therefore, it would have been obvious to an artisan of ordinary skill in the art to incorporate elliptical coupler of Huber et al to the optical communication system of Nakata. One of ordinary skill in the art would have been motivated to provide such in order to alter path of the light beam to a particular direction.

Regarding claim 7, as discussed above the combination of Nakata and Huber et al disclose optical coupler. Furthermore, in Fig. 4, Huber et al show that the coupler includes dispersive element (for example, element 38) to disperse the reflected light.

Regarding claim 8, as discussed in claim 7, furthermore, Huber et al show that the dispersive element includes a micro-mechanical structure (see col. 5, lines 46-48).

Response to Arguments

8. Applicant's arguments filed 06 June 2005 have been fully considered but they are not persuasive.

In the remark applicant argues that the cited reference does not show or disclose processor. The reference, Nakata, shows inter-nodal communication system shown in Fig. 7. Since the nodes communicate by transmitting and receiving optical signal, therefore it would have been obvious that there exist processor to process the optical signal. Asahi (US Patent No. 6,195,186) and Mo et al (US Patent No. 6,693,909) is cited to show such well known concept. On Fig. 16, Asahi shows processor coupled to the data transceiver and on Fig. 3, Mo et al show processing system at the node. Therefore, as evidenced by the prior arts, it is well known to provide processor at the nodes to process the signals.

Applicant further argues that Figure 1, disclosed by applicant, shows multi-processor device. However, as indicated by the applicant, Figure 1, shows multi-processor system and not a multi-processor device.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalzid Singh whose telephone number is (571) 272-3029. The examiner can normally be reached on Mon-Fri 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272--3022. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DS
August 19, 2005


M. R. SEDIGHIAN
PRIMARY EXAMINER